

U.S.S.N. 10,326,500

Claim Amendments

Please amend claims 1 and 9 as follows:

Please add new claims 21-23 as follows:

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Listing of Claims

1. (currently amended) A system for batch treating semiconductor manufacturing process wastewater to reduce an amount of precipitate forming additive required, comprising:

a first collection tank in fluid communication with a wafer backgrind apparatus for receiving a first wastewater comprising first particles;

a second collection tank in fluid communication with a planarization apparatus for receiving a second wastewater comprising second particles;

a batch reaction tank provided in fluid communication with said first collection tank and said second collection tank, said batch reaction tank for receiving and sedimenting particles from a batch of wastewater without overflow of said wastewater comprising the first wastewater and the second wastewater wherein said reaction tank is configured to add an additive to said batch to form a precipitate comprising said first and second particles for sedimentation; and

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at least one clarifier provided in fluid communication with said batch reaction tank for separating said precipitate from said batch of wastewater.

2. (original) The system of claim 1 further comprising a holding tank provided in fluid communication with said first collection tank, said second collection tank and said reaction tank for receiving the first wastewater and the second wastewater from said first collection tank and said second collection tank, respectively, and distributing the first wastewater and the second wastewater to said reaction tank.

3. (original) The system of claim 1 further comprising an effluent collection tank provided in fluid communication with said at least one clarifier for receiving wastewater effluent from said at least one clarifier.

4. (original) The system of claim 3 further comprising a holding tank provided in fluid communication with said first collection

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tank, said second collection tank and said reaction tank for receiving the first wastewater and the second wastewater from said first collection tank and said second collection tank, respectively, and distributing the first wastewater and the second wastewater to said reaction tank.

5. (previously presented) The system of claim 1 further comprising a third collection tank for receiving a third wastewater and wherein said reaction tank is provided in fluid communication with said third collection tank for receiving the third wastewater.

6. (original) The system of claim 5 further comprising a holding tank provided in fluid communication with said first collection tank, said second collection tank and said reaction tank for receiving the first wastewater and the second wastewater from said first collection tank and said second collection tank, respectively, and distributing the first wastewater and the second wastewater to said reaction tank.

7. (original) The system of claim 5 further comprising an effluent collection tank provided in fluid communication with

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said at least one clarifier for receiving wastewater effluent from said at least one clarifier.

8. (original) The system of claim 7 further comprising a holding tank provided in fluid communication with said first collection tank, said second collection tank and said reaction tank for receiving the first wastewater and the second wastewater from said first collection tank and said second collection tank, respectively, and distributing the first wastewater and the second wastewater to said reaction tank.

9. (currently amended) A system for batch treating semiconductor manufacturing process wastewater to reduce an amount of precipitate forming additive required, comprising:

a first collection tank in fluid communication with a wafer backgrind apparatus for receiving a first wastewater comprising first particles;

a second collection tank in fluid communication with a planarization apparatus for receiving a second wastewater comprising second particles;

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a batch reaction tank provided in fluid communication with said first collection tank and said second collection, said batch reaction tank for receiving and sedimenting particles from a batch of wastewater without overflow of said wastewater comprising the first wastewater and the second wastewater, said reaction tank further configured for adding an additive to form a precipitate comprising said first and second particles;

at least one clarifier provided in fluid communication with said batch reaction tank for separating the precipitate from the batch of wastewater wherein said fluid communication comprises an outlet portion of said reaction tank, said outlet portion configured for adding a second additive to further form said precipitate; and

a storage tank provided in fluid communication with said at least one clarifier for receiving wastewater effluent from said at least one clarifier.

10. (original) The system of claim 9 further comprising a holding tank provided in fluid communication with said first collection

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tank, said second collection tank and said reaction tank for receiving the first wastewater and the second wastewater from said first collection tank and said second collection tank, respectively, and distributing the first wastewater and the second wastewater to said reaction tank.

11. (original) The system of claim 9 further comprising an effluent collection tank provided in fluid communication with said at least one clarifier for receiving wastewater effluent from said at least one clarifier, and wherein said storage tank is provided in fluid communication with said effluent collection tank.

12. (original) The system of claim 11 further comprising a holding tank provided in fluid communication with said first collection tank, said second collection tank and said reaction tank for receiving the first wastewater and the second wastewater from said first collection tank and said second collection tank, respectively, and distributing the first wastewater and the second wastewater to said reaction tank.

13. (previously presented) The system of claim 9 further

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comprising a third collection tank for receiving a third wastewater and wherein said reaction tank is provided in fluid communication with said third collection tank for receiving the third wastewater.

14. (original) The system of claim 13 further comprising a holding tank provided in fluid communication with said first collection tank, said second collection tank and said reaction tank for receiving the first wastewater and the second wastewater from said first collection tank and said second collection tank, respectively, and distributing the first wastewater and the second wastewater to said reaction tank.

15. (original) The system of claim 13 further comprising an effluent collection tank provided in fluid communication with said at least one clarifier for receiving wastewater effluent from said at least one clarifier, and wherein said storage tank is provided in fluid communication with said effluent collection tank.

16. (original) The system of claim 15 further comprising a holding tank provided in fluid communication with said first



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collection tank, said second collection tank and said reaction tank for receiving the first wastewater and the second wastewater from said first collection tank and said second collection tank, respectively, and distributing the first wastewater and the second wastewater to said reaction tank.

Claims 17-20 (canceled)

21. (new) The System of claim 1, wherein said precipitate forming additive comprise a polymer coagulant.

22. (new) The System of claim 9, wherein said precipitate forming additive comprise a polymer coagulant.

23. (new) A system for batch treating semiconductor manufacturing process wastewater to reduce a required amount of polymer coagulant to form a precipitate, comprising:

a first collection tank in fluid communication with a wafer backgrind apparatus for receiving a first wastewater comprising first particles;

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a second collection tank in fluid communication with a planarization apparatus for receiving a second wastewater comprising second particles;

a third collection tank in fluid communication with a wafer rinsing apparatus for receiving a third wastewater;

a batch reaction tank provided in fluid communication with said first, second and third collection tanks, said batch reaction tank for receiving and sedimenting particles from a batch of wastewater comprising the first, second and third wastewaters wherein said batch reaction tank is configured for receiving a polymer coagulant to form a precipitate comprising said first and second particles for sedimentation;

wherein said batch reaction tank comprises an outlet portion, whereby said outlet portion is configured for receiving said polymer coagulant polymer coagulant to further form said precipitate; and,

at least one clarifier provided in fluid communication with

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said batch reaction tank for separating said precipitate from  
said batch of wastewater.